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ABSTRACT

A card game, "Mercado," or Market Rummy, designed to teach basic market skills to rural Ecuadorians is described. Two to five people can play the game, which is presently used in night community meetings and in the educational program in coastal cooperatives. The game consists of two decks of cards: one represents money, the other represents typical market commodities with the unit price included. Through drawing and discarding, players match money and commodity cards. For example, two cords of wood at five "sucres" a cord equals a ten "Sucre" note. Play continues until one player has matched all the cards in his hand. Players gain skills as they add costs of products and match them against money cards. For the purposes of rural education in Ecuador, the author encourages using the cards as raw materials and allowing group leaders to create a process and devise a set of rules to meet specific needs. The game may take several variations by considering the effects of bartering, supply and demand, quality of food, and basic nutritional needs. A complete description of the components of Market Rummy and four simple and five complex versions of the game are included. (KC)

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TECHNICAL NOTE NO. 4

MARKET RUMMY

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GAME DESIGNED BY: WILLIAM A. SMITH
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SP 011 571

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SUMMARY:

Product cards contain pictures, unit prices, and number of units of a market commodity. Money cards represent bills and coins. Players attempt to match combinations of money cards with combinations of product cards to develop skill with market mathematics, and with the concept of unit prices.

This series of Technical Notes has been produced by staff members of the Ecuador Nonformal Education Project. Each note focuses on a particular issue or technique which has been developed and tested in Ecuador. The notes contain the information available at the time of writing and analytic comments based upon available evaluation data. However, the notes are in no way an evaluation of the project. Their purpose is to share ideas and information about new techniques as they are developed. Project staff want to encourage comments and suggestions from readers who may have had experience with similar techniques in other settings.

The project is financed by USAID and is a joint undertaking of the Ministry of Education in Ecuador and the Center for International Education at the University of Massachusetts. Ideas and materials derived from the ideas were created jointly by staff in Massachusetts and staff in Ecuador. All materials have undergone considerable change in the field as usage in various situations indicated needed modifications. The notes attempt to accurately credit the creators of each technique. In some cases, though, ideas have been modified by a variety of people and precise assignment of credit is difficult. In all cases, various members of the staff have made substantial inputs into the final version of the materials.

After three years of effort the number of people in Ecuador and in the United States who have made substantial contributions to this project is considerable. Rather than trying to enumerate the particular contributions of each, we will only note that this has been a genuine bi-national effort.

These Technical Notes are reports of work in progress and will be issued periodically as they are written. A small charge of $1.00 per copy will be made to partially defray the costs of reproduction and mailing. The Technical Notes are available in both English and Spanish and may be obtained by writing to:

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MARKET RUMMY

THE NEED

Basic mathematical skills are recognized by the campesino as an immediate educational need. Each week, the campesino without these skills pays dearly for his ignorance in the market. He may be over-charged or short-changed by fast-talking merchants, and fail to catch the error in time.

One vendor may offer a five pound bag of beans for 15 sucres, while another offers four pounds for 10 sucres. Which is a better buy? With heavy competition for bargains, a decision must be made rapidly.

Furthermore, with the 50 sucres in his pocket, the campesino may have difficulty knowing which combination of beans, rice, and noodles represents the best use of a limited budget.

Each of these examples requires understanding and facility in the use of a basic mathematical skill. The first example shows the need for simple fluency, i.e. competency and ability in addition and subtraction in a market setting. The second example requires knowledge of the concept of unit price and the ability to divide rapidly in order to compare relative unit prices of competing vendors. The final example relates the common situation where alternative combinations of goods must be evaluated as ways of using fixed resources. Here the buyer needs both multiplication and addition skills to derive the various possible combinations from the unit prices.

Mercado* is designed to provide a simple and attractive way for people to practice the skills needed to function effectively in the types of situations just outlined. The goal is an increase in ability and a corresponding increase in confidence when dealing with sellers of needed goods. These skills should also be of value when a campesino wants to sell his own produce or enter into a small business of some sort.

SETTING

The game can be played almost anywhere that two to five people can sit down together; in the local bar, during a long bus ride, while waiting in the market, sitting on the ground behind the house, before or after the local coop meeting, etc. At present, the game is used most often in night-time community meetings, where adults and children gather for basic education. The game has been introduced into a project involving educational facilitators, local leaders selected by seven communities and trained by a private consulting organization. Games such as mercado are used by these facilitators to teach basic mathematics.

Ten cooperatives on the coast are also using this game as part of their education program. The writer has also seen campesinos play the game for entertainment in recreational settings.

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* In terms of this final example, the mercado game teaches the existence of a range of alternatives, rather than the choice of the proper alternative. The latter function is dealt with in the Comida (Food) game, among others. Only once the campesino realizes his range of options, is instruction on the nutritive value of different foods meaningful.

Money Card

Commodity Card

BASIC METHOD

The game materials consist of two decks of cards; one consisting of money cards, the other representing commodities typically found in the market, and purchased by campesino families. The commodity cards contain the name of the commodity, a picture of the product, the unit price, and a number of units which the particular card is worth. For instance, one card represents four cords of firewood at 3 sucres per cord. Another might say: one cord of firewood at 3 sucres per cord.

The original version of the game,* as developed by the staff at

* The game originated in discussions at the University of Massachusetts. Principle developers of the pilot game were Bill Smith and Pat Burke. In Ecuador, Patricio Barriga, the project director, directed the modification and refinement of the game, to make it effective in the Ecuadorean setting.

the University and in Quito is played as follows: There are from two to five players. Each player is dealt two cards from each deck, face up. The player to the right of the dealer begins by drawing a card from either the commodity deck or the money deck, which have both been placed in the middle of the group. If the first player is able to match total value of any combination of commodity cards in his hand with any combination of money cards in his hand, he does so, reciting the sums to the group. Thus, two units of corn at seven sucres each plus two cords of wood at 3 sucres equals a 20 sucre note.

After group confirmation of his calculation, he places the cards face down in front of him, and discards. If, on the other hand, he has been unable to match any commodity and money cards, he simply discards one of the cards in his hand. The next player draws, attempts to match cards, and discards. Play continues until one player has successfully matched all cards in his hand. That player is declared winner.

This version of mercado deals with all the skills involved in the market rummy game. To be successful, players must multiply the unit price of each commodity card by its number of units to compute the value of each commodity card. They must add the products thus obtained in various combinations, and test them against sums of money cards.

USEAGE

As one might predict, this original version designed by the staff was considered complex by campesinos, who immediately began to

break market rummy into simpler games, which dealt with the skills on a one by one basis.

While the writer was interviewing one Peace Corps volunteer regarding his use of the game, there was a knock at the door. A campesino from a nearby village had come to purchase a copy of mercado for his family. With a copy borrowed from a local facilitator, he had begun to teach the skills necessary to help in his new store. He wanted his own copy in order to finish the job.

When introducing the game to his family, the storekeeper had ignored the number of units on each commodity card, assuming the card to be one unit, and worth the unit price. He had also dispensed with the idea of several players taking turns. Rather, adapting the game directly to his needs, he assigned the role of storekeeper to his student. Acting as a customer, he would hand three commodity cards to the storekeeper, and ask, "How much is my bill, please?"

His wife or daughter would add the prices of the commodities chosen (ignoring the units on the commodity cards) and state a sum. He would then hand over a sum of money, and wait for his change.

This version of the game deals only with addition and subtraction, and suits the needs of the beginning storekeeper. The campesino asked about more complicated versions of the game. The three of us sat down, and played a few rounds, using other variations of the game. For instance, if the number of units written on each commodity card are used, the "storekeeper" must then multiply the unit price by the number of units, to come up with a total cost for each commodity card.

These figures are then totalled to produce the final bill. Next, the "storekeeper" might be asked to advise the customer how many combinations of three commodities can be purchased from his fixed budget. This version introduces the skill of creating and comparing alternative combinations of commodities which have the same monetary value.

The rules for several other versions are included later in this technical note. They involve more players, and the introduction of various criteria for winning the game ranging from the amount of goods accumulated to the first person able to acquire certain specific combinations of goods. Whatever the specific details of the versions used, the strength of the game lies in its flexibility--the possibility of adapting the difficulty and the procedure to the specific situation and skill level appropriate for the participants.

FURTHER APPLICATIONS

Future development of the game can go in several directions. For more structured situations a package of game versions may well be appropriate. These would trace out a pattern of increasing difficulty as more skills are required in more complex situations. Transition from one version to another might well be decided by the achievement of specific behavioral objectives. Thus when the "storekeeper" is able to correctly add four out of five bills consisting of three commodity cards, he would then move on to a version requiring the use of unit price. Such a packaged sequence would be useful in relatively formal educational settings, and with participants who felt the need of a clearly defined learning structure.

In other settings however, such an approach might have serious limitations. Providing such a structure might reduce student initiative to adapt the game to specific needs. A series of general suggestions might promote creative modification by not specifying details.

In the training of facilitators or group leaders, a complete absence of rules might be most appropriate. Participants would be encouraged to define their needs and then use the raw materials to create a process and a set of rules which meets those needs.

The project has placed a high value upon the development of the type of skills involved in making creative adaptations of materials. The general policy has been to avoid finalized versions and written rules for the games. On the other hand, it may not be realistic to assume that all campesinos will be as resourceful as the "storekeeper." For certain situations, a degree of guidance in the modification of the games may prove more effective.

There are certain aspects of market behavior which mercado does not teach. There is no provision for bargaining for a better price on the goods you buy. There is no concept of price difference due to quality. For instance, overripe fruit may be cheaper. It may also spoil sooner, and have less nutritive value than fresh fruit. Furthermore, prices do not fluctuate with supply and demand. In the original version, there is no incentive for the player to accumulate as many goods as possible. His goal is merely to match money and commodity cards.

To incorporate some of these aspects of market behavior, dice could be rolled to determine unit price of commodities (whose cards would contain only numbers of units). Players could trade or sell commodities among one another. Players could receive points for the number of goods they managed to purchase while being penalized for the cards not matched. Finally, players might aim at satisfying certain basic needs of a campesino family based on the budget they were dealt and the cards they drew. The goal would be not merely to match all your cards, but to have acquired a balance of certain basic commodities listed as crucial to life. This listing could be done either by a master card stating nutritional and economic needs, or by interrelating play of this game with one of the nutrition games produced by the project. Clearly, any basic modifications of the game need testing in the field before getting consideration. The purpose of this discussion is merely to suggest directions in which a game of this nature might grow to encompass new concepts and skills.

COSTS

There are three ways in which the game can be reproduced: commercially, by the project staff, or by campesinos in their communities. Each method seems to have its own advantages and disadvantages for distribution, and its own structure of costs.

The project had 500 copies of mercado produced commercially. Each copy (containing commodity cards and money cards) was printed on thick shiny white stock, with red ink on one side, green ink on the other. Each copy cost US $0.84.

The advantage of this method was rapid dissemination to a multitude of communities and institutions, and a very attractive and impressive looking game. The slickness of this method of presentation may also entail certain disadvantages. If campesinos see the game as a finished product, they may lose the impulse to modify or make extra copies of the game on their own. Furthermore, this method of production involves relatively high costs.

When the project staff copies the game, unit cost is reduced to approximately US $0.60. The cost of materials (thick paper stock, two colors of ink) in US $0.22. Labor (cutting the cardboard, and marking the cards) represents 1 1/2 hours or US $0.38. When copied in this manner, the game looks less imposing, and may invite modification and copying in the villages by campesinos working with available materials.

When copies are made in the villages, costs are difficult to estimate. Ballpoint p .s for marking the cards cost less than $0.04, and may letter many copies before wearing out. .stead of cardboard, any available paper could be used. More durable and weather resistant copies would require cardboard, which could be purchased or scrounged. Copies could be made by students during their free time.

The main point is that costs would be very low. In creating his own copy, the campesino would be more likely to change the game, to meet his own needs. Having invested time and energy in the game, he might feel a stronger commitment to working with the game than he would with a slicker version produced in the city. The disadvantage

of this method of reproduction and dissemination is that it is the slowest of the three alternatives.

Name:	Mercado (Market Rummy)
Developed by:	Pat Burke, Bill Smith, Patricio Barriga
No. of participants:	two to eight
Subject matter:	market mathematics skills
Teaches:	fluency, variety of relationships between products and money
Operating time:	several minutes to several hours
Components:	65 money cards:

15 X 1 sucre	10 X 5 sucres
5 X 0.50 sucre	10 X 10 sucres
5 X 0.10 sucre	5 X 20 sucres
10 X 0.20 sucre	5 X 50 sucres

There are approximately 25 sucres per US $1.00. These amounts were chosen so that the money dealt players would be roughly equal to the amounts they take to market with them each week.

62 commodity cards:

rope	fire wood
cloth	sugar
milk	kerosene
avacados	salt

Various amounts of these commodities are represented on different cards. An attempt was made to simulate the commodities actually purchased in market places by peasants and the prices which they must pay

User level: children or adults with little math skills

Game rules and operations:

Original Version

There are two to five players. Each player is dealt two cards from each deck. The decks are then placed face down in two piles. Players take turns drawing a card from either the commodity deck or the money deck. The player attempts to match the value of one or more commodity cards with the value of one or more money cards. When a player succeeds in matching cards, he places the cards face up in front of the other players, and allows them to verify his calculation. If his calculation is correct, the player leaves the "pack of cards" in front of him and discards. The first player who removes all four cards from his hand is declared winner.

Simpler Versions

1. One means of simplifying the game is to use only the commodity cards listing one unit. This results in less cards (less time required to play a round) and removes from the game the complication of the concept of unit cost and the need to multiply unit cost by number of units to calculate the value of each commodity card.
2. The number of units on the commodity cards may simply be ignored, while all the cards are used. The rounds of the game are thus kept long, while the unit price complication is still removed.
3. In market subtraction, each member of the group draws a money card before play begins. The total of these cards is taken to be the group's "allowance" for this round. The money cards are put aside, players draw cards from the commodity deck, which is placed in the center. The group may or may not use unit prices, as it

chooses. In turn, each player draws a product card, and decides whether or not to subtract its value from the total "allowance" of the group. Play continues until one player is able to arrive exactly at zero. This player is declared winner, and is awarded the pile of cards drawn during the game. If no player is able to reach zero, players begin another round, and award the piles from both rounds to the winner of the second round.

4. To introduce more complexity back into the game, each player may draw his individual "allowance" at the start of the game, and try to exactly match his individual "allowance" during the market subtraction game. Of course, this version can also be played with or without the unit price concept.

More Complex Versions

1. The original version may be lengthened by changing the scoring. Instead of declaring a winner after each round, the group can decide to choose a winner after a set number of rounds. In this case, players are penalized one point for each card still in their hand when the first player has matched all his cards. At the end of the predetermined number of rounds, the player with the lowest number of points is declared winner.

2. Players can be dealt four cards from each deck instead of two. When the original version is played with this modification, more concentration is required over a longer period of time. Sums are apt to be larger, matches more complicated.

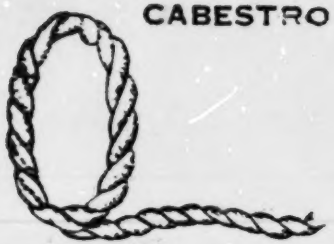
3. Cards are held in the player's hand till the end of the round.

Players thus forego the immediate confirmation of their calculations of their fellows. This version may require more self-confidence, and more organization of the cards in one's hand.

4. Players might be allowed to barter commodity cards among themselves. They might choose to allow trading any commodity card(s) for any other(s) or might require that the sums of the cards offered by one player equal that of the other player's cards. Furthermore, if the sums of the commodity cards did not match, rules might require that the difference be made up in money cards.

5. A set number of rounds is played. At the end, players total the value of the goods they have matched. The player with the largest monetary value wins. Alternatively, the player who most nearly fulfills basic housing and dietary goals with his "purchases" would be winner. (These goals would have to be established in advance, and made known to all the players.)

CABESTRO



4 METROS

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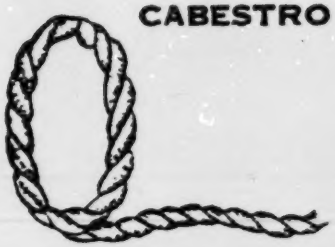

3 METROS

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Precio por CADA Metro

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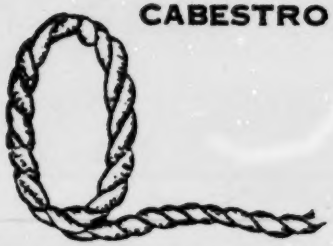

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